MONTHLY PROGRESS REPORT #212
FOR NOVEMBER 2014

EPA REGION I ADMINISTRATIVE ORDERS SDWA 1-97-1019 and 1-2000-0014

JOINT BASE CAPE COD (JBCC)
TRAINING RANGE AND IMPACT AREA

The following summary of progress is for the period from 1 November to 30 November 2014.

1. SUMMARY OF REMEDIATION ACTIONS

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of November 2014. Remediation Actions may include Rapid Response Actions (RRA). An RRA is an interim action that may be conducted prior to risk assessments or remedial investigations to address a known, ongoing threat of contamination to groundwater and/or soil.

Demolition Area 1 Comprehensive Groundwater RA

The Demolition Area 1 Comprehensive Groundwater RA consists of the removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. Extraction, treatment, and recharge (ETR) systems at Frank Perkins Road, Pew Road, and the Base Boundary include extraction wells, ex-situ treatment processes to remove explosives compounds and perchlorate from the groundwater, and injection wells to return treated water to the aquifer.

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility was operating at a flow rate of 250 gpm with over 2.146 billion gallons of water treated and re-injected as of 28 November 2014. No shut downs of the Frank Perkins Road facility occurred in November:

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 105 gpm with over 389 million gallons of water treated and re-injected as of 28 November 2014. The following Pew Road MTU shut down occurred in November:

- Shut down on 2 November 2014 at 0422 due to a power interruption and was restarted on 3 November 2014 at 0742.

The Base Boundary RA continues to operate at a flow rate of 65 gpm with over 95.7 million gallons of water treated and re-injected as of 28 November 2014. No Base Boundary MTU shut downs occurred in November.

J-1 Range Groundwater RA

Southern Plant

The J-1 Range Southern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 28 November 2014, over 239 million gallons of water have been treated and re-injected. The following J-1 Range Southern system shut downs occurred in November:

- Shut down on 2 November 2014 at 0200 due to a power interruption. Extraction well EW-1 was restarted on 4 November 2014 at 1043 and EW-2 was restarted on 3 November 2014 at 1511. A damaged contractor was replaced in the variable frequency device (VFD) cabinet; and
- Shut down on 20 November 2014 at 1407 due to a power interruption. Extraction well EW-1 was restarted on 21 November 2014 at 1522 and EW-2 was restarted on 21 November 2014 at 1420.

Northern Plant

The J-1 Range Northern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 28 November 2014, over 113 million gallons of water have been treated and re-injected. No J-1 Range Northern MTU shut downs occurred in November.

J-3 Range Groundwater RRA

The J-3 Range Groundwater RRA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes three extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater and use of the existing Fuel Spill-12 (FS-12) infiltration gallery to return treated water to the aquifer.

The J-3 system is currently operating at a flow rate of 95 gpm (with Extraction well EW-IP1 off line since 22 November 2014). As of 28 November 2014, over 769 million gallons of water have been treated and re-injected. The following J-3 system shut downs occurred in November:

- Shut down on 2 November 2014 at 0225 due to a power interruption and was restarted on 3 November 2014 at 0923;
- EW-0032 was shut down on 4 November 2014 at 0142 due to a power interruption and was restarted on 4 November at 1252;
- EW-0032 was shut down on 8 November 2014 at 2024 due to a power interruption and was restarted on 10 November at 1030;
- EW-0032 was shut down on 10 November 2014 at 1100 due to a power interruption and was restarted on 10 November at 1231;
- EW-0032 was shut down on 13 November 2014 at 1455 due to a power interruption and was restarted on 14 November at 0937;
- EW-IP1 was shut down on 16 November 2014 at 0153 due to a system alarm and was restarted on 17 November at 0944;
- EW-0032 was shut down on 16 November 2014 at 2250 due to a system alarm and was restarted on 17 November at 0944;
- The system was shut down on 19 November 2014 at 1405 due to prepare for a granular activated carbon (GAC) change-out and was restarted on 21 November at 0927;

- EW-IP1 was shut down on 22 November 2014 at 1712 due to a system alarm; EW-IP1 remains off and needs to be re-programmed.
- EW-0032 was shut down on 22 November 2014 at 1712 due to a system alarm and was restarted on 24 November at 0917;
- EW-0032 was shut down on 24 November 2014 at 1924 due to a system alarm and was restarted on 25 November at 1102; and
- EW-0032 was shut down on 28 November 2014 at 2051 due to a system alarm and was restarted on 01 December 2014 at 0807.

J-2 Range Groundwater RA

Northern Plant

The J-2 Range Northern Treatment facility consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The Extraction, Treatment, and Infiltration (ETI) system includes three extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration basin to return treated water to the aquifer.

The Northern Treatment Building continues to operate at a flow rate of 225 gpm. As of 28 November 2014, over 554 million gallons of water have been treated and re-injected. The following Northern Treatment Building shut down occurred in November:

- Shut down on 01 November 2014 at 2309 due to a power interruption and was restarted on 03 November 2014 at 0838.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 28 November 2014, over 946 million gallons of water have been treated and re-injected. The following J-2 Range Northern MTU shut downs occurred in November:

- MTU E was shut down on 01 November 2014 at 2317 due to a power interruption and was restarted on 03 November 2014 at 0814;
- MTU F was shut down on 01 November 2014 at 2305 due to a power interruption and was restarted on 03 November 2014 at 0815; and
- MTU E was shut down on 27 November 2014 at 0002 due to a system alarm and was restarted on 01 December 2014 at 0806.

Eastern Plant

The J-2 Range Eastern Treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETI system includes the following components: three extraction wells in an axial array, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat perchlorate and explosives compounds and three infiltration trenches located along the lateral boundaries of the plume where treated water will enter the vadose zone and infiltrate into the aquifer. The J-2 Range Eastern system is running at a combined total flow rate of 495 gpm.

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 28 November 2014, over 635 million gallons of water have been treated and re-injected. The following shut down of MTUs H and I occurred in November:

- MTUs H and I were shut down on 02 November 2014 at 0432 due to a power interruption and were restarted on 03 November 2014 at 0846;
- MTUs H and I were shut down on 10 November 2014 at 1332 due to system alarms and were restarted on 10 November 2014 at 1409; and
- MTUs H and I were shut down on 20 November 2014 at 1407 due to a power interruption and were restarted on 21 November 2014 at 1402.

MTU J continues to operate at a flow rate of 120 gpm. As of 28 November 2014, over 299 million gallons of water have been treated and re-injected. The following shut downs of MTU J occurred in November:

- MTU J was shut down on 02 November 2014 at 0212 due to a power interruption and was restarted on 04 November 2014 at 0957 (two contractors were replaced in the VFD cabinet); and
- MTU J was shut down on 20 November 2014 at 1407 due to a power interruption and were restarted on 22 November 2014 at 1100.

MTU K continues to operate at a flow rate of 125 gpm. As of 28 November 2014, over 362 million gallons of water have been treated and re-injected. The following shut down of MTU K occurred in November:

- MTU K was shut down on 20 November 2014 at 1416 due to a power interruption and was restarted on 21 November 2014 at 1416.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: two extraction wells, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat explosives compounds and two infiltration galleries to return treated water to the aquifer. The CIA systems 1 and 2 continue to run at a combined total flow rate of 500 gpm. As of 28 November 2014, over 222 million gallons of water have been treated and re-injected. No CIA treatment facility shutdowns occurred in November.

SUMMARY OF ACTIONS TAKEN

Samples collected during the reporting period are summarized in Table 1.

Process water samples were collected at Frank Perkins Road, Pew Road, Base Boundary, J-1 Range Southern, J-1 Range Northern, J-2 Range Northern, J-2 Range Eastern, J-3 Range, and Central Impact Area (CIA).

Environmental and system performance monitoring groundwater samples were collected from the CIA, J-1 Range Northern, J-2 Range Northern, J-3 Range, and Demolition Area 2.

Continued intrusive investigation of Metal Mapper anomalies in 16-acre area at the CIA.

Completed EM-61 survey of the CIA Phase II 10-acre area.

JBCC IAGWSP Tech Update Meeting Minutes 13 November 2014

Project and Fieldwork Update

An update was provided on Central Impact Area fieldwork. A figure was provided that highlighted the status of each of the work areas. The 2014 annual report should be available in mid-December. In phase II work, an EM-61 survey is being performed in the first 10 acres. Work should be completed by Thanksgiving. The 100% EPA QA/QC grid was completed and data is still being reviewed.

Drilling Update

There is no new drilling to report. Sampling crews are working in J-1 North.

Demo 1

An update was provided on the appraisal of property in Pocasset. Mr. Mendes indicated that he would contact USACE Real Estate office on November 10th with a response to the Government's offer to purchase an easement but he did not. USACE continues to reach out to the family. Funds are available to pay for the easement. Once the family signs the offer, the schedule for the system construction and start up can begin. IAGWSP will continue to provide updates on progress at tech meetings.

Small Arms Ranges

IAGWSP is preparing a project note that proposes next steps based on the last round of sampling results and the field visit.

Action Items

The action items were discussed and updated.

CIA Design Presentation

A presentation was provided on the Central Impact Area extraction well location analysis. The presentation provided the results of the analysis performed to evaluate the supplemental extraction well locations. It was explained that the RDX plume was revised based on the additional monitoring well data that has been received over the past year. While the RDX concentrations are similar to 2012 model predictions, the orientation of the leading edge is more northwesterly than originally predicted.

A water level synoptic round was conducted in September 2014 which showed that contours updgradient of Burgoyne Road were consistent with 2012 model depiction but contours at the leading edge were more northwesterly. A figure showing 2012 plume depiction vs. 2014 was reviewed.

The analytical models used for the simulations were discussed. It was noted that for the 3D numerical model, it was difficult to calibrate to the new groundwater elevation data. The screening (2D) flow model (AQUIFERWIN 32) was more easily calibrated than the numerical model and it has been used on other JBCC sites (Demo 1/J-1N). The model assumed an average hydraulic Conductivity of - 105 ft/day and an aquifer thickness of 200+ feet. There was a fixed constant head at the base boundary and a TOM was developed. The September synoptic results were used to calibrate the model.

Four new extraction well simulations were analyzed with the analytical model:

- Near MW- 223 (Transect A-A')
- Avery Road (Dec 2013 Project Note)
- Near MW-626 (Former CIA-14)
- Leading Edge (Near MW-616)

Figures showing the capture zones for each scenario under the numerical and analytical simulation were displayed and reviewed.

It was noted that both models were reasonable tools to evaluate extraction well locations but that the analytical model was more easily altered to emulate observed conditions. The Avery Road analytical model simulation shows that it captures most of the RDX plume (above 2 ppb) and there is possible off-post migration of 2 ppb plume for 1-2 years. For the location near MW-626, the entire RDX plume above 2 ppb is captured but construction is more difficult than at Avery Road.

IAGWSP will submit a revised design project note in mid-December.

JBCC Cleanup Team Meeting

The JBCC Cleanup Team (JBCCCT), formerly the MMR Cleanup Team (MMRCT), is next scheduled to meet on January 14, 2015. The Cleanup Team meeting discusses late breaking news and responses to action items, as well as updates from the IAGWSP and IRP. The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

SUMMARY OF DATA RECEIVED

Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 November through 30 November 2014. These results are compared to the Maximum Contaminant Levels/Health Advisory (MCL/HA) values for respective analytes. Explosives and perchlorate are the primary contaminants of concern (COC) at Camp Edwards.

There are currently twelve operable units (OU) under investigation and cleanup at Camp Edwards. The OUs include: Central Impact Area, Demolition Area 1, Demolition Area 2, Former A Range, J-1 Range, J-2 Range, J-3 Range, L Range, Northwest Corner, Small Arms Ranges, Training Areas and Western Boundary. Environmental monitoring reports for each OU are generated each year to evaluate the current year groundwater results. These reports are available on the site Environmental Data Management System (EDMS) and at the project document repositories (IAGWSP office, Jonathan Bourne Library, Falmouth Public Library, and Sandwich Public Library).

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

• Monthly Progress Report No. 211 for October 2014	11/10/2014
• Final Central Impact Area System Startup Monitoring Report	11/06/2014
• Draft J-1 Range Northern and J-1 Range Southern Environmental Monitoring Work Plan	11/10/2014
• Draft J-3 Range Decision Document	11/13/2014
• Final J-1 Range Northern System Startup Monitoring Report	11/13/2014
• Draft J-3 Range 2014 Interim Environmental Monitoring Report	11/18/2014

3. SCHEDULED ACTIONS

The following documents are being prepared or revised during December 2014:

- CIA Project Note for ESTCP Metal Mapper Results;
- CIA 2013 Source Report;
- CIA 2014 Source Report;
- CIA Design Package Project Note;
- J-2 Range Project Note for Additional Wells to Evaluate Source Response;
- J-3 Range Draft Decision Document;
- J-3 Range Draft Post-Decision Document Field Work Project Notes;
- Small Arms Ranges Decision Document;
- Training Areas Draft Investigation Report;
- Former A Range 2014 Annual Environmental Monitoring Report;
- Demolition Area 2 2014 Annual Environmental Monitoring Report;
- J-2 Range Eastern and J-2 Range Northern Environmental Monitoring Work Plan;
- Northwest Corner 2014 Annual Environmental Monitoring Report;
- Central Impact Area 2014 Interim Environmental Monitoring Report;
- 2013 BIP Report;
- J-1 Range Northern and J-1 Range Southern Environmental Monitoring Work Plan;
- J-3 Range 2014 Environmental Monitoring Report; and
- J-2 Range Eastern and J-2 Range Northern Environmental Monitoring Work Plan.

TABLE 1
Sampling Progress: 01 November 2014 to 30 November 2014

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 2	MW-161S	MW-161S_F14	N	11/25/2014	Ground Water	145.5	155.5
Demolition Area 2	MW-160S	MW-160S_F14	N	11/25/2014	Ground Water	137.5	147.5
Demolition Area 2	MW-311M1	MW-311M1_F14	N	11/25/2014	Ground Water	222	232
Demolition Area 2	MW-572M1	MW-572M1_F14	N	11/25/2014	Ground Water	164.9	174.9
Demolition Area 2	MW-404M2	MW-404M2_F14	N	11/24/2014	Ground Water	200	210
Demolition Area 2	MW-404M1	MW-404M1_F14	N	11/24/2014	Ground Water	219.5	229.5
Demolition Area 2	MW-573M2	MW-573M2_F14	N	11/24/2014	Ground Water	155.4	165.4
Demolition Area 2	MW-573M2	MW-573M2_F14D	FD	11/24/2014	Ground Water	155.4	165.4
Demolition Area 2	MW-573M1	MW-573M1_F14	N	11/24/2014	Ground Water	176.4	186.4
Central Impact Area	MW-633M2	MW-633M2_R2	N	11/19/2014	Ground Water	197	207
Central Impact Area	MW-633M1	MW-633M1_R2	N	11/19/2014	Ground Water	282	292
Central Impact Area	MW-638M2	MW-638M2_R2	N	11/19/2014	Ground Water	204.2	214.2
Central Impact Area	MW-638M1	MW-638M1_R2	N	11/19/2014	Ground Water	261.2	271.2
J1 Range Northern	MW-166M3	MW-166M3_F14	N	11/18/2014	Ground Water	125	135
J1 Range Northern	MW-166M2	MW-166M2_F14	N	11/18/2014	Ground Water	150	160
J1 Range Northern	MW-166M1	MW-166M1_F14	N	11/18/2014	Ground Water	218	223
J1 Range Northern	MW-303M3	MW-303M3_F14	N	11/18/2014	Ground Water	139.7	149.7
J1 Range Northern	MW-303M2	MW-303M2_F14	N	11/18/2014	Ground Water	235.1	245.1
J1 Range Northern	MW-303M2	MW-303M2_F14D	FD	11/18/2014	Ground Water	235.1	245.1
J1 Range Northern	MW-303M1	MW-303M1_F14	N	11/18/2014	Ground Water	299.1	309.1
J3 Range	RS0011OSNK	RS0011OSNK_F14R_O	N	11/17/2014	Ground Water	0	0
J3 Range	RS0011OSNK	RS0011OSNK_F14R_I	N	11/17/2014	Drinking Water	0	0
Central Impact Area	MW-629M2	MW-629M2_R2	N	11/17/2014	Ground Water	186.9	196.9
Central Impact Area	MW-629M1	MW-629M1_R2	N	11/17/2014	Ground Water	216.9	226.9
Central Impact Area	MW-629M1	MW-629M1_R2D	FD	11/17/2014	Ground Water	216.9	226.9
Central Impact Area	MW-349M2	MW-349M2_F14	N	11/13/2014	Ground Water	195	205
J1 Range Northern	MW-349M2	MW-349M2_F14	N	11/13/2014	Ground Water	195	205
Central Impact Area	MW-349M1	MW-349M1_F14	N	11/13/2014	Ground Water	229	239
J1 Range Northern	MW-349M1	MW-349M1_F14	N	11/13/2014	Ground Water	229	239
J1 Range Northern	MW-245M2	MW-245M2_F14	N	11/13/2014	Ground Water	204	214
J1 Range Northern	MW-245M2	MW-245M2_F14D	FD	11/13/2014	Ground Water	204	214
J1 Range Northern	MW-245M1	MW-245M1_F14	N	11/13/2014	Ground Water	244	254
J1 Range Northern	MW-136S	MW-136S_F14	N	11/12/2014	Ground Water	107	117
J1 Range Northern	MW-326M3	MW-326M3_F14	N	11/12/2014	Ground Water	165.2	175.3
J1 Range Northern	MW-326M2	MW-326M2_F14	N	11/12/2014	Ground Water	196.3	206.3
J1 Range Northern	MW-326M2	MW-326M2_F14D	FD	11/12/2014	Ground Water	196.3	206.3
J1 Range Northern	MW-326M1	MW-326M1_F14	N	11/12/2014	Ground Water	250	260
J1 Range Northern	MW-346M4	MW-346M4_F14	N	11/10/2014	Ground Water	140	150
J1 Range Northern	MW-346M3	MW-346M3_F14	N	11/10/2014	Ground Water	175	185
J1 Range Northern	MW-346M2	MW-346M2_F14	N	11/10/2014	Ground Water	205.3	215.3
J1 Range Northern	MW-346M2	MW-346M2_F14D	FD	11/10/2014	Ground Water	205.3	215.3
J1 Range Northern	MW-346M1	MW-346M1_F14	N	11/10/2014	Ground Water	245	255
J1 Range Northern	MW-346M1	MW-346M1_F14D	FD	11/10/2014	Ground Water	245	255
J1 Range Northern	MW-168M3	MW-168M3_F14	N	11/06/2014	Ground Water	103	113
J1 Range Northern	MW-168M2	MW-168M2_F14	N	11/06/2014	Ground Water	198	208
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-74A	N	11/06/2014	Process Water	0	0
J1 Range Northern	MW-164M2	MW-164M2_F14	N	11/06/2014	Ground Water	157	167
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-74A	N	11/06/2014	Process Water	0	0
J1 Range Northern	MW-164M1	MW-164M1_F14	N	11/06/2014	Ground Water	227	237
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-74A	N	11/06/2014	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 November 2014 to 30 November 2014

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-74A	N	11/06/2014	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-74A	N	11/06/2014	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-84A	N	11/05/2014	Process Water	0	0
J1 Range Southern	J1S-MID-2	J1S-MID-2-84A	N	11/05/2014	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-84A	N	11/05/2014	Process Water	0	0
J1 Range Northern	MW-191M2	MW-191M2_F14	N	11/05/2014	Ground Water	120	130
J3 Range	J3-EFF	J3-EFF-98A	N	11/05/2014	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-98A	N	11/05/2014	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-98A	N	11/05/2014	Process Water	0	0
J3 Range	J3-INF	J3-INF-98A	N	11/05/2014	Process Water	0	0
J1 Range Northern	MW-590M2	MW-590M2_F14	N	11/05/2014	Ground Water	238	248
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-98A	N	11/05/2014	Process Water	0	0
J1 Range Northern	MW-590M1	MW-590M1_F14	N	11/05/2014	Ground Water	258	268
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-98A	N	11/05/2014	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-98A	N	11/05/2014	Process Water	0	0
J1 Range Northern	MW-584M2	MW-584M2_F14	N	11/05/2014	Ground Water	228	238
J1 Range Northern	MW-584M1	MW-584M1_F14	N	11/05/2014	Ground Water	248	258
J1 Range Northern	MW-479M1	MW-479M1_F14	N	11/04/2014	Ground Water	240	250
J1 Range Northern	MW-401M3	MW-401M3_F14	N	11/04/2014	Ground Water	228.5	238.5
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID3A	FPR-2-GAC-MID3A-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-104A	N	11/04/2014	Process Water	0	0
J1 Range Northern	MW-401M1	MW-401M1_F14	N	11/04/2014	Ground Water	256.1	266.1
Demolition Area 1	PR-EFF	PR-EFF-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-104A	N	11/04/2014	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-104A	N	11/04/2014	Process Water	0	0
J1 Range Northern	MW-606M2	MW-606M2_F14	N	11/04/2014	Ground Water	193.2	203.2
Demolition Area 1	D1-EFF	D1-EFF-52A	N	11/04/2014	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-52A	N	11/04/2014	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-52A	N	11/04/2014	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-52A	N	11/04/2014	Process Water	0	0
J1 Range Northern	MW-606M1	MW-606M1_F14	N	11/04/2014	Ground Water	233.3	243.3
J1 Range Northern	MW-540M1	MW-540M1_F14	N	11/04/2014	Ground Water	258	268
J1 Range Northern	MW-430M2	MW-430M2_F14	N	11/03/2014	Ground Water	188.4	198.4
Central Impact Area	CIA2-EFF	CIA2-EFF-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-10A	N	11/03/2014	Process Water	0	0
J1 Range Northern	MW-430M1	MW-430M1_F14	N	11/03/2014	Ground Water	245.2	255.2
Central Impact Area	CIA2-MID1	CIA2-MID1-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-10A	N	11/03/2014	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-10A	N	11/03/2014	Process Water	0	0
J1 Range Northern	MW-541M1	MW-541M1_F14	N	11/03/2014	Ground Water	210	220
J1 Range Northern	J1N-EFF	J1N-EFF-13A	N	11/03/2014	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-13A	N	11/03/2014	Process Water	0	0
J1 Range Northern	J1N-INF1B	J1N-INF1B_F14	N	11/03/2014	Ground Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-13A	N	11/03/2014	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 01 November 2014 to 30 November 2014

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Northern	J1N-INF2	J1N-INF2-13A	N	11/03/2014	Process Water	0	0
J1 Range Northern	J1N-INF1A	J1N-INF1A_F14	N	11/03/2014	Ground Water	0	0
J1 Range Northern	MW-369M1	MW-369M1_F14	N	11/03/2014	Ground Water	254.1	264.1
J2 Range Northern	MW-620M1	MW-620M1_R3	N	11/03/2014	Ground Water	268.6	278.6
J2 Range Northern	MW-313M1	MW-313M1_F14R	N	11/03/2014	Ground Water	255.4	265.4

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received November 2014

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J3 Range	RS0011OSNK	RS0011OSNK_F14R_O	0	0	11/17/2014	SW6850	Perchlorate	0.55		UG/L	2.0		0.019	0.20
J1 Range Northern	MW-306M2	MW-306M2_F14	164.7	174.7	10/21/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.28		UG/L	0.60		0.026	0.20
J1 Range Northern	MW-306M2	MW-306M2_F14	164.7	174.7	10/21/2014	SW6850	Perchlorate	0.97		UG/L	2.0		0.019	0.20
J1 Range Northern	MW-306M1	MW-306M1_F14	184.9	194.9	10/21/2014	SW6850	Perchlorate	0.065	J	UG/L	2.0		0.019	0.20
J1 Range Southern	MW-592M1	MW-592M1_F14	201	211	10/16/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.98		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-614M2	MW-614M2_OCT14	215	225	10/15/2014	SW6850	Perchlorate	0.040	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-614M2	MW-614M2_OCT14D	215	225	10/15/2014	SW6850	Perchlorate	0.042	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-615M2	MW-615M2_OCT14	200	210	10/15/2014	SW6850	Perchlorate	0.023	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-615M1	MW-615M1_OCT14	260	270	10/15/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.092	J	UG/L	400		0.023	0.20
Central Impact Area	MW-615M1	MW-615M1_OCT14	260	270	10/15/2014	SW6850	Perchlorate	0.78		UG/L	2.0		0.019	0.20
Central Impact Area	MW-615M1	MW-615M1_OCT14	260	270	10/15/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	2.7		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-614M1	MW-614M1_OCT14	275	285	10/15/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.34		UG/L	0.60		0.026	0.20
Central Impact Area	MW-623M3	MW-623M3_OCT14	275	285	10/15/2014	SW6850	Perchlorate	0.071	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-623M3	MW-623M3_OCT14	275	285	10/15/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.17	J	UG/L	400		0.023	0.20
Central Impact Area	MW-623M3	MW-623M3_OCT14	275	285	10/15/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	2.6		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-623M1	MW-623M1_OCT14	340	350	10/15/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.18	J	UG/L	0.60		0.026	0.20
Central Impact Area	MW-624M1	MW-624M1_OCT14	284	294	10/15/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.046	J	UG/L	0.60		0.026	0.20
J1 Range Southern	MW-524M1	MW-524M1_F14	148	158	10/14/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.53		UG/L	400		0.023	0.20
J1 Range Southern	MW-524M1	MW-524M1_F14	148	158	10/14/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	3.8		UG/L	0.60	X	0.026	0.20
J1 Range Southern	MW-524M1	MW-524M1_F14D	148	158	10/14/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.51		UG/L	400		0.023	0.20
J1 Range Southern	MW-524M1	MW-524M1_F14D	148	158	10/14/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	3.7		UG/L	0.60	X	0.026	0.20
J1 Range Southern	MW-360M2	MW-360M2_F14	102	112	10/14/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	2.0		UG/L	400		0.023	0.20
J1 Range Southern	MW-360M2	MW-360M2_F14	102	112	10/14/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	7.7		UG/L	0.60	X	0.026	0.20
J1 Range Southern	MW-360M2	MW-360M2_F14D	102	112	10/14/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	2.4		UG/L	400		0.023	0.20
J1 Range Southern	MW-360M2	MW-360M2_F14D	102	112	10/14/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	9.2		UG/L	0.60	X	0.026	0.20
J1 Range Southern	MW-522M2	MW-522M2_F14	165	175	10/07/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.28		UG/L	0.60		0.026	0.20
J1 Range Southern	MW-482M2	MW-482M2_F14	172.6	182.6	10/06/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	3.0		UG/L	0.60	X	0.026	0.20
Demolition Area 1	RS750COUNTY	RS750COUNTY_T14	0	0	09/29/2014	SW6850	Perchlorate	0.11	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-89M2	MW-89M2_F14	214	224	09/29/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	1.0		UG/L	400		0.023	0.20
Central Impact Area	MW-89M2	MW-89M2_F14	214	224	09/29/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	16.2		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-89M2	MW-89M2_F14D	214	224	09/29/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	1.0		UG/L	400		0.023	0.20
Central Impact Area	MW-89M2	MW-89M2_F14D	214	224	09/29/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	16.5		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-23M1	MW-23M1_F14	225	235	09/29/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	1.0		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-223M2	MW-223M2_F14	185	195	09/29/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.50		UG/L	0.60		0.026	0.20
Central Impact Area	MW-176M1	MW-176M1_F14	270	280	09/29/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.21		UG/L	400		0.023	0.20
Central Impact Area	MW-176M1	MW-176M1_F14	270	280	09/29/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	2.9		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-123M1	MW-123M1_F14	291	301	09/25/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	1.4		UG/L	0.60	X	0.026	0.20
J2 Range Eastern	MW-228S	MW-228S_F14	104	114	09/25/2014	SW8330	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX)	0.41		UG/L	400		0.023	0.20
J2 Range Eastern	MW-228M2	MW-228M2_F14	126	136	09/25/2014	SW6850	Perchlorate	0.30		UG/L	2.0		0.019	0.20

J = Estimated Result
MDL = Method Detection Limit
RL = Reporting LImit

MCL/HA= Either the MCL or Lowest Health Advisory Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received November 2014

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Central Impact Area	MW-617M2	MW-617M2_R2	118.3	128.3	09/24/2014	SW6850	Perchlorate	0.026	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-617M1	MW-617M1_R2	175.8	185.8	09/24/2014	SW6850	Perchlorate	0.035	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-616M2	MW-616M2_R2	107.1	117.1	09/24/2014	SW6850	Perchlorate	0.036	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-616M1	MW-616M1_R2	217.1	227.1	09/24/2014	SW8330	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)	0.89		UG/L	0.60	X	0.026	0.20
Central Impact Area	MW-618M2	MW-618M2_R2	190.5	200.5	09/24/2014	SW6850	Perchlorate	0.073	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-618M1	MW-618M1_R2	238.5	248.5	09/24/2014	SW6850	Perchlorate	0.10	J	UG/L	2.0		0.019	0.20
J2 Range Eastern	MW-351M2	MW-351M2_F14	233.7	243.7	09/16/2014	SW6850	Perchlorate	0.029	J	UG/L	2.0		0.019	0.20
J2 Range Eastern	MW-351M1	MW-351M1_F14	278.6	288.6	09/16/2014	SW6850	Perchlorate	0.097	J	UG/L	2.0		0.019	0.20
J2 Range Eastern	MW-372M1	MW-372M1_F14	273.1	283.1	09/16/2014	SW6850	Perchlorate	0.021	J	UG/L	2.0		0.019	0.20
J2 Range Eastern	MW-399M1	MW-399M1_F14	238.2	248.2	09/16/2014	SW6850	Perchlorate	0.057	J	UG/L	2.0		0.019	0.20
J2 Range Northern	MW-630M1	MW-630M1_R2	217	227	09/15/2014	SW6850	Perchlorate	0.030	J	UG/L	2.0		0.019	0.20
J2 Range Northern	MW-634M3	MW-634M3_R2	170.6	180.6	09/15/2014	SW6850	Perchlorate	0.17	J	UG/L	2.0		0.019	0.20
J2 Range Northern	MW-634M2	MW-634M2_R2	200.6	210.6	09/15/2014	SW6850	Perchlorate	4.5		UG/L	2.0	X	0.019	0.20
J2 Range Northern	MW-634M2	MW-634M2_R2D	200.6	210.6	09/15/2014	SW6850	Perchlorate	4.5		UG/L	2.0	X	0.019	0.20
J2 Range Northern	MW-634M1	MW-634M1_R2	305.6	315.6	09/15/2014	SW6850	Perchlorate	0.035	J	UG/L	2.0		0.019	0.20
J3 Range	MW-636M2	MW-636M2_R2	110.5	120.5	09/15/2014	SW6850	Perchlorate	2.5		UG/L	2.0	X	0.019	0.20

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